

Title (en)

METHOD FOR PRODUCING AMMONIA ON THE BASIS OF A NITROGEN-HYDROGEN MIXTURE FROM NATURAL GAS

Title (de)

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Title (fr)

PROCEDE DE PRODUCTION D'AMMONIAC A PARTIR D'UN MELANGE D'AZOTE ET D'HYDROGENE PROVENANT DE GAZ NATUREL

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Application

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Abstract (en)

[origin: WO0238499A1] The invention relates to a method for producing ammonia on the basis of a nitrogen-hydrogen mixture from natural gas. To this end, natural gas is fed to an autothermic reformer together with an O₂ rich gas. A crude synthesis gas is produced at temperatures ranging from 900 to 1200 DEG C, a pressure of 40 to 100 bar and in the presence of a cracking catalyst. Said gas, in the dry state, has a H₂ content of from 55 to 75 vol.-%, a CO content of from 15 to 30 vol.-%, a CO₂ content of from 5 to 30 vol.-% and a volume ratio H₂:CO of 1.6 to 4. The crude synthesis gas leaving the reformer is cooled, led through a catalytic conversion system to convert CO to H₂, thereby obtaining a conversion synthesis gas with a H₂ content, in the dry state, of at least 55 vol.-% and a CO content of not more than 8 vol.-%. The conversion synthesis gas is subjected to a multi-step gas purification to remove CO₂, CO and CH₄, thereby producing an N₂-H₂ mixture that is subjected to an ammonia synthesis to catalytically produce ammonia. The ammonia produced by said ammonia synthesis can at least be partially converted to urea by reacting it with CO₂.

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